

DOCUMENT RESUME

ED 177 509

CS 005 060

AUTHOR Vaughan, Joseph L., Jr., Ed.; Gaus, Paula J., Ed.
TITLE Research on Reading in Secondary Schools: A
Semi-Annual Report. Monograph Number One.
INSTITUTION Arizona Univ., Tucson.
PUB DATE Apr 78
NOTE 56p.; For related document, see CS 005 061
EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Program Content; Reading Consultants; *Reading
Instruction; Reading Programs; *Reading Research;
Research Methodology; Research Needs; Research
Problems; Secondary Education; *Structural
Analysis

ABSTRACT

This monograph is the first in a series of semiannual reports focusing on research related to reading in secondary schools. The first section includes three reviews of literature specifically related to word analysis instruction for adolescents and to reading programs that have been examined from a research perspective. Of the two papers in the second section, one deals with the generalization of reading research conducted with elementary school students to support the use of certain activities with adolescents, and one suggests that reading specialists can and should conduct meaningful research. (FL)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED177509

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

RESEARCH ON READING IN SECONDARY SCHOOLS

A Semi-Annual Report

Monograph Number One

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Joseph L. Vaughan, Jr.

Paula J. Gaus

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

Edited by

Joseph L. Vaughan, Jr.

Paula J. Gaus

April, 1978

CS005060

INTRODUCTION

This monograph is dedicated to the pursuit of research related to reading in secondary schools. It has been funded by Dr. Lee B. Jones, Dean of the Graduate College at the University of Arizona for the primary purpose of disseminating available research to professionals in reading who are interested in improving the reading ability of adolescents.

Numerous copies of this monograph are being distributed on a complimentary basis to reading educators across the nation; subsequent monographs will also be sent to these educators. Additional copies may be obtained by sending \$2.50 to the editors at the University of Arizona.

Two subsequent monographs have been planned and are in the editorial process. Each will deal with reviews of research related to reading in secondary schools. Articles that deal with this area are also being reviewed by three members of the editorial board. If accepted, an article will be scheduled for a future issue and the author(s) so notified.

The editorial board has deemed that articles that deal with reviews of research are of primary interest but specific studies will also be considered. Such articles should be of interest to reading professionals on the secondary level and should not have been published elsewhere. Interested authors should submit articles or questions to the editors.

The editorial board is comprised of faculty and doctoral students in the Reading Department of the University of Arizona. Specifically, the editorial board for this issue included:

Wilbur S. Ames, Ph.D.
Patricia L. Anders, Ph.D.

Linda L. Barrow
Barbara Flores
David Hayes

As the editors of this issue we heartily thank each of them for their assistance.

Joseph L. Vaughan, Jr.
Paula J. Gaus

All materials in this monograph have been copyrighted c1978. All rights reserved. No part of any of this publication may be reprinted, reproduced, or transmitted in any form or by any means without written permission from the editors.

TABLE OF CONTENTS

	Page
Introduction	i
Table of Contents	1
Preface	2
 Reviews of Research:	
Teaching Extracontextual Word Analysis in the Secondary Grades: A Review of the Research Literature David Hayes, Ph.D. Candidate, Reading Department, University of Arizona	4
Word Analysis in Context: Facts and Suppositions Paula J. Gaus, Ph.D. Candidate, Reading Department, University of Arizona	16
Secondary School Reading Programs with a Research Base Michael R. Sampson, Ph.D. Candidate Reading Department, University of Arizona	28
 Invited Papers:	
Problems of External Validity in Secondary Reading Research Keith E. Meredith, Ph.D., Assistant Professor Department of Educational Psychology, University of Arizona	38
Research in Secondary Reading: The Specialists' Responsibility Patricia L. Anders, Ph.D., Assistant Professor Reading Department, University of Arizona	46
Call for Papers	55

PREFACE

This monograph is the first in a series of semi-annual reports that focus on research related to reading in secondary schools. Quite simply, our objective is two-fold.

First, we hope to share with others a concern that in spite of an immense number of research efforts in the field of reading, only a scant amount of these efforts have been conducted on the secondary level. In spite of numerous pedagogical textbooks that have been published recently in which authorities proffer suggestions for improving adolescents' reading ability, many of the activities and strategies proposed have little or no substantive research base to support their use with adolescents.

While our concern may appear to be negatively oriented, we hope to inspire increased research efforts that can provide substantive conclusions about reading on the secondary level. We offer, therefore, a CALL FOR PAPERS on topics related to secondary reading. Specifically, we seek two types of articles: (1) reviews of literature on a given topic and/or (2) reports of research related to secondary reading. We direct our call for papers primarily to doctoral students and those who have recently received their doctoral degree in reading. In essence, we hope to compile and publish information that might otherwise reap only the dust of a shelf in private offices and university libraries. We certainly do not restrict our call to the neophytes in this field as we hope to appeal to anyone who might have a desire to support a publication where research in secondary school reading can be compiled and synthesized.

Our second objective is directly related to the first as we hope to compile, synthesize, and disseminate research related to secondary school reading programs, strategies, and activities. We are pursuing a model based on Hal Herber's Research Reports in Reading in the Content Areas (Syracuse University Press); yet we intend to include research in all areas of secondary reading.

This first monograph includes several reviews of literature, specifically, related to word analysis instruction for adolescents and to reading programs that have been examined from a research prospective. In addition, we include an article that highlights one of the major concerns related to reading instruction in secondary schools, specifically the generalization of research compiled with elementary readers to support the use of certain activities with adolescents. In this paper, Meredith cites the problems associated with generalizing research data to a different population. Finally, we include an article directed to reading specialists. In this article Anders suggests that reading specialists can and should conduct meaningful research.

The second and third monographs are tentatively planned although they may be revised, especially if additional articles are submitted and accepted for inclusion. The second monograph focuses on reading comprehension research while the third emphasizes reading in the content areas. These first three monographs are primarily reviews of literature and in almost every instance they highlight the need for further research efforts. The second monograph will be published in October, 1978; the third, April, 1979.

In recent years we have seen a heightened interest in reading in secondary schools. While the field of reading is inundated with research, the area of secondary reading is all but virgin territory for researchers. We hope that you will join with us to encourage investigative efforts that will lead to improving reading instruction for adolescents.

We have thrown down the proverbial gauntlet; only time will tell who will pick it up.

Joseph L. Vaughan, Jr.
Paula J. Gaus

Teaching Extracontextual Word Analysis
in the Secondary Grades:
A Review of the Research Literature

David Hayes

Authorities on secondary school reading commonly advance the notion that instruction in word analysis skills is appropriate for adolescent readers. Perusal of some of the more widely used texts on secondary level reading instruction (Aukerman, 1972; Burmeister, 1974; Shepherd, 1978; Thomas and Robinson, 1973) reveals general agreement that students gain facility with words and how they are put together. Assuming that adolescents learn in the same ways as younger children, these authorities have drawn support from the research conducted at the elementary school level.

Purpose

The purpose of this paper is to determine whether recommendations for isolated word study in the secondary grades can find support in the word-study research conducted with adolescents. Specifically, it is the intent of this paper to review the published studies which have focused on the effect of teaching structural analysis and phonic analysis to adolescent readers. Unfortunately, this review is limited since few studies have been reported.

Early Studies

The earliest investigations related to word study in the secondary grades were reported by Henmon (1921) and by Tate (1936). Although both of these studies failed to employ controls and reporting procedures ordinarily expected in current educational research, they do stand as prototypic efforts of scientifically testing the worth of teaching word analysis skills to adolescents.

The purpose of the Henmon study was to confirm a high school principal's positive opinion of a word study program offered in his school.

"Mr. Volney G. Barnes, principal of the school, while confident from personal observation and judgment that the course was valuable, raised the question ... as to whether it was not possible to apply tests which would demonstrate objectively the values that might have accrued from the course and prove or disprove the correctness of his opinion as to the desirability of its continuance" (p. 98).

To test this opinion, fifty-four tenth grade students participated in an intensive word study program for twelve weeks. Henmon did not describe the content of the program, but he did list its expected outcomes as increases "in vocabulary, in ability to give meaning accurately, in ability to choose words discriminately, and in ability to read difficult prose understandingly" (p. 98). To measure these outcomes, at the end of the twelve-week program the following tests were given: Terman's Vocabulary Test, Thorndike's Visual Vocabulary, Trabue's Completion Scale L, and Tests 1a and 1b of the Thorndike Intelligence Examination. These tests were administered not only to the word

study group but to the entire sophomore class, which numbered approximately 350 students. Each word study participant was then paired with another tenth grade student on the basis of marks earned in the ninth grade and according to amount of previous foreign language study. Henmon then made a comparison of test scores, which showed a difference in favor of the word study group. Mr. Barnes' opinion was confirmed and the value of word study was apparently proved.

A decade and a half later a report on another word study investigation involving secondary level students appeared in the professional literature. In this one Tate (1936) described an experiment in which the purpose was to determine the effect of studying word roots on building reading vocabulary. Although the investigator reported it as two separate experiments, he in fact described the effect of the treatment on the experimental group as one experiment and the effect of the lack of the treatment on the control group as the second experiment.

A sixth grade class and an eighth grade class were each "equated" with another class at the same grade level according to median age in years and months and according to median I.Q. scores. One teacher taught the sixth grade classes and another teacher taught the eighth grade classes. All classes participating in the experiment were pretested with the New Stanford Reading Test, Form V, Text 2, an 80-item multiple choice vocabulary test. All classes were then taught the 80 words and the 400 multiple choice words of this test in alphabetical order. Students drilled according to

a 10-step procedure. The only difference in instruction between the treatment and control classes was that the treatment classes attended to the root and derivation of the words taught by having the roots and origins presented on the chalkboard and discussed by the teacher and by writing them down in their notebooks. When the list of 480 words was exhausted, in about 16 weeks, the same vocabulary subtest of the Stanford Reading Test was given again as a post test. Tate reported that "all groups showed extraordinary gains over their initial performances." Gains were reported in terms of median scores, which showed no difference between the sixth grade experimental and control classes and a difference of 3.95 points between the median scores of the eighth grade experimental and control classes. The experimenter concluded that root-word study is valuable for eighth graders but not for sixth graders.

Obviously there are problems with both the Hermon and the Tate studies, problems which make it difficult to share the conclusions of the investigators. Hermon on the one hand neither described the instruction nor explained how the instruction would yield the expected outcome. Tate on the other hand delineated so precisely the routine followed by teachers and students that he revealed that the students were taught the test. Still, these early studies can be regarded as significant in the lore of word analysis research, for they did attempt to provide secondary teachers some scientifically controlled test of their classroom practices, which had hitherto proceeded with none.

Recent Studies

More recent studies have been conducted by Otterman (1955), Love (1960), and Burmeister (1968a, 1968b). While these more recent experiments show improvement in control of experimental setting and in reporting procedures, the support they lend word analysis instruction remains minimal.

Otterman evaluated the effectiveness of teaching prefixes and root-words at the seventh grade level. Her study ambitiously aimed to find out whether a program of systematic instruction focusing on prefixes and root-words would effect improvement in seven areas of students' written language facility: interpretation of new words, spelling, knowledge of prefix and root-word meanings, speed of auditory and visual perception of words, general vocabulary knowledge, reading comprehension, and rate of reading. During the instructional phase of the study, prefixes taken from a list compiled by Stauffer (1942) and root-words taken from a list compiled by Osburn (1925) were taught according to directions contained in a manual specially prepared for the investigation.

The instruction was given ten minutes each day for six weeks to ten seventh grade classes. Ten other seventh grade classes served as control classes. Teachers were assigned a control class for each experimental class they taught. From the twenty classes a sample was drawn matching students according to the following criteria: mental age measured by the Otis Quick-Scoring Mental Ability Test; reading scores obtained from the Gates Reading Survey for Grades 3 to 10; and vocabulary, spelling

proficiency, auditory perception, and visual perception measured by four unpublished instruments. In order to measure gains, tests were given again after the instructional phase. An additional test was given six weeks after the instructional period in order to test retention of the meanings of the studied prefixes in root-words.

The results of the testing were reported narratively. They were reported as showing a statistically significant (confidence level not given) superiority of the experimental group in the areas of spelling and visual perception. In the area of interpreting new words, experimental group students in the high mental age category scored significantly better (confidence level not given) than students in the corresponding category of the control group. No statistically significant differences were found between control and experimental students' performance in the other areas evaluated. Otterman concluded from her results that if benefit can be derived from studying prefixes and word roots it will be by bright students.

Although this investigation might be criticized for having left many details unreported, especially with regard to the instruments devised by the investigator to measure gains, such a shortcoming does not materially affect the study's significance for word analysis instruction. The significance of the study resides in the finding that word study benefited only bright students. Such a finding indicates that this type of language study works for students who already know a great deal about language but that for students who are not exceptionally adept with language it yields little

or no benefit. The implication for classroom practice is that effort commonly spent on word study for remedial students would prove better spent on students who excel. If the conclusion of the Otterman study is correct, the use of such word analysis instruction with remedial students would seem to be of little value. In light of secondary schools' current practice of restricting phonic and structural analysis instruction to remedial students, the Otterman study offers no justification for this type of instruction in the secondary grades.

Love conducted an experiment designed to compare the effectiveness of two phonics centered approaches to teaching reading in a summer workshop. One approach used drill activities and workbook activities. The other approach used games and practice which was not recognized as special drill. Both approaches were directed toward teaching the same phonic generalizations. All instruction was given on an individual basis using a variety of materials. Wide reading was encouraged. Two instructional groups were made up of twelve year old subjects who were matched according to age in months, WISC scores, and scores on the Gates Reading Survey. There were fifteen students in each group. Love did not discuss the qualifications and selection of teachers. At the end of fifteen weeks of individually paced instruction, the two groups were tested with an alternate form of the Gates Reading Survey, and their gain scores were compared. Gains were made by both groups in all areas tested, but the gains were not found to be significantly different between the groups.

Love concluded that "phonics taught in a vacuum as a special drill with the use of phonics workbooks can do more harm than good." In other words, since there were no differences between the phonics treatment groups, the overall gains seem likely to have resulted from other reading activities. Love emphasized that the experiment did not deal with "phonics in a vacuum" by noting that library books, mimeographed materials, and a variety of other aids were used with students according to their individual interests. In fact, because there were other features of the instruction the extent of whose influence on the posttest gains is not known, it is not possible to determine the impact of the phonics approaches compared. One might also question the generalizability of an experiment conducted with so few subjects and at that subjects whose motivation was likely to be unrepresentative of any twelve year olds except those who would be willing to spend summer vacation in a reading improvement workshop. In any case, Love presented no evidence to support the notion that phonics instruction either by rote drill or by fun games can make a difference in improving reading ability.

Burmeister compared the effectiveness of different approaches to the teaching of twelve phonic and structural analysis generalizations, whose utility she established in a separate phase of the same study. The approaches considered were: 1) a deductive approach, by which the teacher explicitly states the generalization to be learned and then elicits examples from students, 2) an inductive approach, by which students arrive at

generalizations on their own when presented examples by the teacher, and
3) no instruction at all.

Twelve English teachers were trained to teach the word analysis generalizations by deductive and inductive methods and were randomly assigned a class for each of the three approaches. The thirty-six classes involved were made up of heterogeneously grouped eighth and ninth grade students. Within each of these classes nine students were randomly selected for inclusion in the sample. The duration of the instructional phase was two weeks. Two and a half to three weeks after the instructional phase was completed, unannounced oral and silent reading tests were given. The purpose for not announcing the tests was to assure a more accurate assessment of students' retention of the generalizations taught. Because of absenteeism and low posttest scores, six classes were dropped from the experiment. Scores of sample members in each remaining class were averaged, and those average scores were then figured in an overall average for particular treatment category. These overall averages were subjected to a one way analysis of variance.

On both the oral and silent reading tests, subjects in classes receiving instruction by the deductive method generally scored higher than subjects in the other classes, but among the three approaches, no statistically significant differences were found for either silent or oral reading test scores. A statistically significant (.01) difference in oral reading scores was found between scores in the no-instruction classes and the

combined scores of subjects in the deductive and inductive instruction classes.

Burmeister's study has received widespread recognition as a well designed experiment in a neglected area of secondary level reading research. It does appear to be the best designed and executed study of its kind yet reported in the professional literature. Whereas previous studies dealt with word generalizations merely collected from lists compiled by other authorities, Burmeister carefully selected the word generalizations applied in her experiment on the basis of a utility study. Selection of her sample, preparation of the teachers, and execution and evaluation of the instruction painstakingly followed as controlled an experimental plan as one could hope for in applied educational research, although one does wonder about the experimental sections she dropped from the study. Burmeister narrowed the scope of her experiment to focus on but two dependent variables -- oral reading performance and silent reading comprehension. Yet for all the experiment's sophisticated design and careful execution, its findings offer little support for teaching word analysis to secondary level readers. The only statistically significant finding that she obtained -- that word study at the secondary level improves oral reading performance but not silent reading comprehension -- amounts to something less than strong evidence in support of word study in the secondary grades.

Summary

Recommendations for teaching word analysis skills in isolation are found in most textbooks on reading instruction at the secondary level. The prevalence of these recommendations would lead one to believe that instruction in word analysis at the secondary level is of great value. A review of the research, however, reveals that few investigations have been undertaken to test the efficacy of the practices recommended and that these few investigations have been marked by clumsy design, failure to account for the effect of extraneous factors on results, and inconclusive findings. These investigations have failed to show any worthwhile effects stemming from word analysis instruction. Until a body of research is reported which does, classroom teachers can regard word study recommendations skeptically.

References

- Aukerman, R. C. Reading in the secondary school classroom. New York: McGraw Hill Book Co., 1972.
- Burmeister, L. E. Reading strategies for secondary school teachers. Reading, Mass.: Addison-Wesley Publishing Co., 1974.
- Burmeister, L. E. Selected word analysis generalizations for a group approach to corrective reading in the secondary school. Reading Research Quarterly, IV, 71-95 (1968a).
- Burmeister, L. E. Word analysis — Corrective reading in the secondary school. Journal of the Reading Specialist, 7, 100-104 (1968b).
- Hemmon, V.A.C. An experimental study of the value of word study. The Journal of Educational Psychology, XII, 93-102, (1921).
- Love, H. D. An experimental phonics program versus a controlled integral reading program. Journal of Developmental Reading, IV, 280-282 (1961).
- Osburn, W. J. Remedial and follow-up vocabulary. Bulletin Number 1, Blookington, Illinois: Public School Publishing Co., 1925.
- Otterman, L. M. The value of teaching prefixes and word-roots. Journal of Educational Research, 48, 611-616 (1955).
- Shepherd, D. L. Comprehensive high school reading methods (2nd ed.). Columbus, Ohio: Charles E. Merrill Publishing Co., 1978.
- Stauffer, R. G. A study of prefixes in the Thorndike List to establish a list of prefixes that should be taught in the elementary school. Journal of Educational Research, XXV, 453-458 (1942).
- Tate, H. L. Two experiments in reading-vocabulary building. Modern Language Journal, XXIII, 214-218 (1936).
- Thomas, E. L. and Robinson, H. A. Improving reading in every class: A sourcebook for teachers. Boston: Allyn and Bacon, 1973.

Word Analysis in Context:

Facts and Suppositions

Paula J. Gaus

A number of authorities in the field of secondary reading support the use of context clues, structural analysis, phonic analysis and dictionary as types of word identification skills. Definitions of word identification skills suggest that all must be used in combination to accomplish one of two purposes: pronunciation or derivation of meaning. There seems to be some conflicting points of view in terms of the purpose of word identification skills. Several authors assume that when used in combination these skills will enable a student to pronounce words and through the pronunciation will achieve understanding because the word is in their receptive vocabulary. On the other hand, some authors assume that the use of these skills will lead to understanding of words that are not in the reader's listening vocabulary. It seems logical to assume that certain of these word identification skills are directed toward pronunciation, i.e. phonics and structural analysis, while contextual analysis skills would be useful to determine the meaning of words that are not in one's listening vocabulary. Unfortunately, few of the authors of these pedagogical textbooks support suggestions for teaching word identification skills to adolescents with research that would suggest them to be appropriate to aid in adolescent comprehension.

Purpose

The purpose of this paper is to identify that research related to the use of contextual analysis as a viable strategy by adolescents as they read. The nature of the research to be reviewed can be classified into two categories: 1) the various types of contextual clues used by adolescents, and 2) instructional programs used to help adolescents learn these strategies.

Use of Context Clues

Most investigations in the area of contextual analysis have focused on validating the use of context clues to determine meaning. The predominant direction of these investigations has been to identify classificatory schema for the various types of context clues.

The efforts of Artley (1943) and McCullough (1943) foreshadow these types of investigations. The classificatory schema that each of these authors derived was by their own admission based more upon intuition than any objective analysis. Artley posited ten categories and twenty-one subtypes of contextual clues. He presumed three major types of clues: verbal, based on the words immediately surrounding the unfamiliar word; experiential, based on the reader's experience with a particular meaning of an otherwise familiar word; and what might be termed stylistic, based upon the author's tone, mood, and intent. McCullough summarily reported several unpublished studies of high school and college students' methods of dealing with unfamiliar words. She concludes that good readers are better able than poorer ones to use a

combination of strategies in ferreting out the meanings of words with unfamiliar meanings.

However, the quite unstatistical impression which these studies give is inadequacy of independent attack on word meanings, all too little retention of helpful knowledge of roots, and a very nebulous concept of the context clue (p. 141).

In an effort to clarify the nature of context clues, McCullough proposed seven types which recur in various forms throughout the literature on classificatory schema: comparison or contrast, substituted synonym within a cliché, established mood or condition, summarized situation, synonym or definition, experiential, and combination.

Studies by Dulin and Quealy lend credence to the idea that high school students use context clues for understanding unfamiliar words and that certain types of clues interact with the various form classes to make the process more or less difficult.

Ames (1966) contributed to the literature on context clues by (1) subjectively delineating fourteen categories of clues and (2) objectively testing for their existence as clues to meaning. Although the fourteen categories may not be discreet, they are inclusive. Each of the fourteen categories was validated in the testing of a graduate student population.

Quealy (1969) chose to validate the categories using a high school population and the same testing materials and methods as in Ames' earlier study. Quealy presented 445 tenth, eleventh, and twelfth grade students with twenty articles selected from Readers' Digest and the Saturday Evening Post.

The articles had been modified in that every fiftieth word was replaced by a nonsense word which retained any affixes. Only adjectives, adverbs, nouns, and verbs were selected for replacement. Students were asked to determine the meaning of the nonsense words and to indicate what clue assisted them. Seventy-two transcriptions of the experimental conversations were judged as to accuracy or meanings produced.

Quealy found that students used the fourteen categories devised by Ames for his graduate student population, but used them less proficiently. He found that high, average and low ability students differed in their ability to use context clues to derive new meanings, but no significant difference between grade levels. Although differences might have been expected between sexes, none were found. The additional findings that the percentage of nonsense words correctly identified differed significantly between the four experimental form classes supports Dulin's findings.

It may appear that Quealy has contributed little more than a reconfirmation of previous findings. McCullough had reported differences between "poorer students" and "mature students" in their abilities to use a combination of strategies to determine word meanings. The fourteen category classification scheme is attributed to Ames and verified by Quealy. The primary contribution of Quealy's investigation however seems to be validation of adolescents' ability to use the various clues. It may be that the experimental arrangements may have encouraged students to use talents which they ordinarily do not employ; however, the findings do indicate that adolescents are able to use context clues to derive meanings for unfamiliar words.

Dulin (1968) argued that earlier studies of context clues (including Ames' and by implication, Quealy's) were marred by small numbers of subjects, lack of control groups, and unsophisticated designs and statistical treatments. He investigated specifically the interaction of clue type and form class. He constructed five forms for gathering data, each consisting of twenty-five one-to-three-sentence reading selections. Each selection was followed by a five-choice test item. Within each form, the five context clue types selected for study appeared. Each clue type was presented in combination with a simulated noun*, a simulated verb, a simulated adjective, a simulated adverb and a "non-word" for which the only correct response was "none of the above." These materials were assigned to 315 tenth graders, with sixty-three students taking each form.

Dulin found significant differences to exist between clue types in a hierarchy from easy to more difficult: (in order) language experience, cause/effect relationships, contrast, direct descriptions, and linked synonyms and/or appositives. Contextual devices related to grammatical class interacted hierarchically also. Contrast functioned better with adjectives and adverbs.

*A simulated noun is a nonsense word which has the appearance of a noun. A simulated adverb, for example, is "plassily." A "non-word" may have the characteristics of any form class, but no acceptable synonym may be found among the four available choices. "Non-words" and "none of the above" were included to control for guessing.

Linked synonyms and/or appositives functioned less well with adjectives than any other class. Similarly, noun-meanings were more easily generated by contrast, language experience and cause/effect relationship clues than by synonyms and/or appositives. Verb-meanings were significantly more easily generated by cause/effect relationships, language experience and contrast clues than by linked synonyms and/or appositives or direct description. Adverb-meanings were more easily generated by language experience and cause/effect relationship clues than by the other three devices, with direct description clues significantly less effective than the remaining two. Finally, adjective-meanings were significantly less easily generated by linked synonyms and/or appositives than by any other device.

Dulin's study confirms and extends findings by Quealy that the meanings of words of a particular grammatical class are more easily generated by certain types of context clues. Since some individual items may have been better exemplars of a clue type than others, the interaction of clue type and grammatical class may be stronger than this study indicates. However, the utility of the findings is weakened by the fact that Dulin determined to use only five clue types. Earlier research had differentiated seven to fourteen distinct categories. Strident controls on internal and external validity lend support to Dulin's findings. However, additional research in the determination of grammatical class differences in meaning-generation from context clues is indicated.

A different route to the understanding of adolescent use of context for word identification decisions was taken by Klein, Klein and Vigoda (1975). Students were given passages in which all capitalization and punctuation had been removed and with letters spaced evenly across the page.

there were thus no word boundaries apparent. The high school students' task was to draw slashes between word boundaries. In half of the passages (200 words in length) words were randomly placed. Half of the passages retained the original text. Subjects were 144 students from ninth through twelfth grades.

The researchers found that context allowed students to make 43% more correct decisions. Further, a relationship existed between context use as measured by the word boundary task and superior reading performance as measured by subtests of the Co-operative English Test for Comprehension and by teacher rating.

A critical appraisal of the study reveals some potential problems in scoring of the word boundaries in the random passages. Nevertheless, the strength of the observed difference indicates that high school students use context in making word identification decisions. Once again, findings support the view that better readers use context more efficiently than less able readers.

Instructional Program

The studies cited thus far indicate the extent to which students are actively using context for word identification. Apparently only one study

addresses the issue of whether instruction in the use of context clues improves adolescent use. Guarino (1960) reasoned that if students failed to use context effectively, instruction should be given. He made the a priori assumption that context clues provide the best source of understanding new words. He gave 238 tenth graders eleven lessons in the use of five types of context clues (lessons are included in the dissertation) while 230 students served as controls. Students were pre- and post-tested for use of context clues and reading comprehension.

Guarino found differences in ability to use context clues to attach meaning to previously unfamiliar words. He concluded that (1) instruction in context clues improves ability to infer meanings of unfamiliar words, (2) students with low initial context ability and high comprehension benefit most from instruction, and (3) general improvement in context ability is to be expected from grade to grade at the high school level, and (4) ability to use context clues to infer meanings is significantly correlated with I.Q. and reading ability.

Guarino's first conclusion is logically acceptable, although students in the experimental group had an advantage in practicing with the test-like lessons that the control group obviously lacked. The third conclusion contrasts with Quealy's later finding that there were no significant differences between grade levels. There are two possible explanations for this discrepancy. First, the two studies used different populations, i.e. Quealy's subjects were upper middle class students attending a university lab school whereas Guarino's

represented a less unique population. A second explanation is related to inadequate data. Guarino was primarily interested in the 238 tenth grade students who served as his experimental population. The control group may have provided preliminary but inadequate evidence of increasing ability to use context clues. All researchers have found that high I.Q. or Verbal Reasoning ability relate positively with ability to use context clues. By reasoning that adolescent slower learners are often those with insufficient word identification skills, one might assume from Guarino's second inclusion that instruction in the use of context clues may not be a completely satisfactory approach. However, since these conclusions are based on a particular set of instructional materials, we may fault the materials before the idea.

Guarino did find that instruction in the use of context clues resulted in improved ability to infer word meanings for unfamiliar words. Such ability did not result, however, in increased scores on a standardized test of reading ability. It is unlikely that eleven lessons in the application of any subskill such as use of context clues would result in statistically significant differences in scores of reading achievement on standardized tests.

Implications

Research has repeatedly shown that context provides a valid method of identifying meanings for unfamiliar words. No research has surfaced which analyzes the effect of improved ability to use context for deriving meaning on word analysis skills or for pronunciation. Guarino's study indicates that

instruction in the use of context clues does result in improved ability to use the skill. However, results of such instruction on various types of learners and on overall reading achievement are inconclusive.

Very little research addresses the more general concern of extent to which word analysis is related to overall reading ability. Numerous psycholinguists have indicated that when a reader stops to use word analysis skills, reading stops since meaning is interrupted. Guarino's study, limited though it is to standardized test, could be interpreted as supporting such a view.

Nevertheless, there is precedent for teaching word identification skills through context. Since the preliminary evidence finds this strategy basically acceptable, it is suggested that use of context for unlocking meaning for unfamiliar words be further examined.

Finally, it seems to be no longer appropriate for professional educators to suggest the use of techniques for which they have little or no research support especially for use with adolescent learners.

References

- Ames, Wilbur S. "The Development of a Classification Scheme of Contextual Aids," Reading Research Quarterly, 2:57-82 (Fall, 1966).
- Artley, A. Sterl. "Teaching Word Meaning Through Context," Elementary English Review, 20:68-74 (February, 1943).
- Curry, Robert. "Teaching Decoding Skills" in Lawrence Hafner's (ed.) Improving Reading in the Secondary Schools: Selected Readings. N.Y.: Macmillan Co., 1967.
- Cushenbery, Donald C. Remedial Reading in the Secondary School. N.Y.: Parker Publishing Co., Inc., 1972.
- Dulin, Kenneth LaMarr. "The Role of Contextual Clues in the Acquisition of Specific Reading Vocabulary by Mature Readers," Doctoral Dissertation, University of Washington at Seattle, 1968.
- Guarino, Eugene A. "An Investigation of the Effectiveness of Instruction Designed to Improve the Reader's Skill in Using Context Clues to Derive Word Meaning." Doctoral Dissertation, Syracuse University, 1960.
- Hafner, Lawrence. Developmental Reading in Middle and Secondary Schools: Foundations, Strategies, and Skills for Teaching. N.Y.: Macmillan Publishing Co., 1977.
- Karlin, Robert. Teaching Reading in High School: Improving Reading in Content Areas, Third Edition. Indianapolis: Bobbs-Merrill Educational Publishing, 1977.
- Karlin, Robert. Teaching Reading in High School, Second Edition. Indianapolis: Bobbs-Merrill Co., Inc., 1972.
- Klein, Helen Altman, Gary A. Klein, and Christy Hopkins Vigoda, "The Utilization of Contextual Information by High School Students" in George H. McNinch and Wallace D. Miller (eds.) Reading: Convention and Inquiry, Twenty-fourth Yearbook of the National Reading Conference, 1975, 148-154.
- McCullough, Constance M. "Learning to Use Context Clues." Elementary English Review, 20:140-143 (April, 1943).

Miller, Wilma H. Diagnosis and Correction of Reading Difficulties in Secondary Students. N.Y.: Center for Applied Research in Education, 1973.

Quealy, R. J. "Senior High School Students Use of Contextual Aids in Reading," Reading Research Quarterly, 4: 514-553 (Fall, 1969).

Thomas, Ellen Lamar and H. Alan Robinson. Improving Reading in Every Class. Boston: Allyn and Bacon, Inc., 1974.

Secondary School Reading Programs
With a Research Base

Michael R. Sampson

Reading in the secondary schools has been a topic of thought and research by educators for several decades. The purpose of this paper is to examine the research related to reading programs in American secondary schools in an attempt to discover the characteristics of programs that appeared to succeed in improving the reading abilities of students.

In reviewing the professional literature, it was discovered that

...there appears to be a greater variability in program names than in program content and operation. From one school to the next, the programs termed 'developmental,' 'corrective,' 'remedial,' or 'disadvantaged' are easily interchangeable (Hill, 1970, p. 10).

Emphasis then must be placed upon examining the mechanics and substance of the program, rather than on what type it is said to be.

Differences in emphasis in programs warrant some classifications of programs. Undoubtedly, some programs might be classified in more than one area, but for the sake of organization, programs have been classified as being either of laboratory setting, remedial, or content area.

Laboratory Setting

According to Heggman (1962), the Laboratory Setting

. . . offers an environment that provides freedom to learn individually, independently, successfully, freedom from pressure of assignments, of competitions, freedom for almost immediate success, immediate use of learned skills, and acquired tools for securing endless knowledge (p. 67).

This laboratory setting would usually include reading instruction taking place in a separate room with special instructional materials. Schools often called such places reading labs, centers, or clinics.

Berkey (1967) reported one such laboratory program in which 600 ninth-grade students were given reading instruction in a laboratory environment. The students were grouped homogeneously and met each day for eight weeks in the lab. After the completion of the eight week period, the students were sent back into an English classroom four days per week and came to the lab the remaining day. The goals of the lab were to increase reading rate, increase comprehension, enlarge vocabulary, and provide techniques for studying. The first three goals were attacked by providing students with specific exercises in skimming, rate building, getting the main idea, reading for details, and vocabulary building. Unfortunately, Berkey did not name the sources of these exercises. The goal of providing students with study techniques was attacked with the SQ3R study formula and the TQLR listening formula. The testing instrument used was the Nelson Silent Reading Test. Three forms of the test enabled testing to be done before laboratory instruction, after laboratory instruction, and at the end

of the school year. Results indicated an average gain of ten months per student at the completion of the eighth week laboratory period and average gains of 1.8 years during the total ten month school year. Berkey also reported gains not measured by the testing instrument. These gains included self-confidence, increased usage of the libraries, and a more favorable attitude toward school and reading.

Marquis (1963) found similar results in a study where 700 sophomore, junior, and senior students spent one class period per week for two semesters in a reading lab. Students worked in individual booths with devices such as shadowsopes, controlled readers, and tachistoscopes. Books used for instruction included Cosper's and Griffin's Toward Better Reading Skills and Studying Effectively by Wrenn and Larsen. Direct group instruction was not provided. The teacher served as a resource person and provided guidance and individual conferences as the students worked assignments from their folders.

The program's objectives were increasing or improving reading speed, comprehension, vocabulary, critical reading ability, study methods, and skimming and scanning techniques. The program was evaluated at the conclusion of the two semesters with an unnamed standardized test. This test indicated schoolwide average gains in comprehension of 10% and an average gain in words per minute of 71%.

Remedial Programs

Remedial programs usually provide special aid for students who have been identified as being reading underachievers. Rossman (1977) described such

a program in a Connecticut High School where 500 of the school's 1,850 students were identified by the Stanford Achievement Test and the Nelson-Denny Reading Test as reading below seventh grade level. These students were assigned to remedial reading classes in place of their regular English classes. Assignments were made according to students' reading levels, which ranged from the lowest class which was composed of students with reading levels of 2.0 through 4.0, to the highest class with students who had reading levels of 6.5 through 8.0. The teachers and the reading specialist chose materials on word attack skills, vocabulary development, and comprehension for each class according to the needs of that class. The classes operated much like reading labs as the rooms were equipped with

. . . controlled readers, Tach-X cards, tachistoscopes, Aud-X, Language Masters, tape recorders and cassettes, Scope magazines, basic workbooks, . . . vocabulary builders, . . . content area workbooks, drivers manuals, . . . and other such practical reading material (p. 395).

At the end of the school year, the same tests were again administered to the students. The program's goal of raising individual reading levels by six months was surpassed as ". . . nearly every student who regularly attended class was able to raise his or her reading level by at least one year."

Williams (1958) reported an average gain in reading of .7 per pupil after six weeks of instruction in a summer corrective reading program. Eighty-eight high school students and three teachers were involved in the program. The students' instructional reading levels ranged from fifth through eleventh grades. Instructional materials included reading workbooks, Reader's Digests, tachistoscopes,

and Science Research Associates Laboratories. In addition to achievement test score gains, Williams reported that students ". . . improved in their interest and work habits . . ." He hypothesized that removing the term "Remedial" from the title of summer reading classes resulted in higher enrollment.

Content Area Programs

The assumption made by those who advocate content area programs is that the best place to teach the reading of a certain subject was in that subject area classroom and by that classroom teacher. Herber (1961) organized such a program, in which reading was taught in close conjunction with a social studies course. The study involved 2,000 junior high students over a five month period. At the completion of the study, the Iowa Silent Reading Test indicated students had made an average gain of one to two grade levels.

Content area reading programs were limited in scope, and few studies have been reported. Unfortunately, many good descriptions of content area programs neglected evidence of evaluation and, therefore, the effectiveness of these programs is questionable.

Critique of Secondary School Reading Research

It had been hoped that a review of the literature of secondary school reading programs would have isolated the characteristics of successful programs. However, almost all studies of laboratory setting, remedial, and content area programs reported gains of some degree. The question was whether these gains were true indications of reading growths. Most gains were reported by advances of reading levels on standardized tests.

McDonald (1965) indicated that the reliability of these tests was in question. He claimed that

. . . appreciably speeded tests, those with short time limits, and those which seek to measure many aspects of comprehension pay the price in lowered reliability of parallel forms (p. 417).

Davis (1961) pointed out that in many studies, reliability coefficients were computed by other than parallel forms methods. This resulted in exaggerated high results.

Ohlsen (1963) claimed that alternate forms of tests were never exactly comparable. This also raised questions concerning gains reported on such tests.

Where no control group is used, McDonald (1965) stated that ". . . regression to the mean will produce spurious indications of gain, especially when students have been selected because of initial low test scores." This challenged the validity of the test scores.

Spache (1964) has pointed out limitations of the reports of reading programs which claimed better comprehension, improved vocabulary, and faster reading rates. He claimed that there was no acceptable definition of comprehension and that reading rate depended upon the type of material being read and the reader's purpose for reading.

Another factor to consider was that any change from the normal routine of students may effect increased attention and participation. This "Hawthorne effect" could also play a role in the improvement of reading scores during an experimental period.

Artley (1968) has stated that it is unfortunate that little has been done to assess reading growth in the content areas. The reasons for this lack of assessment were given by Artley as being a lack of valid tests of reading performance in the content areas. He claimed that tests being used do not measure reading in its broadest sense following Gray and Rodger's (1956) guidelines in their Maturity in Reading.

Many questions about the competences and skills of secondary reading teachers were answered by Freed (1973) in a survey at 485 school systems. The results of the survey were alarming

-- of the responding school districts, no more than half of the reading teachers and almost none of the English teachers who teach reading are certified; but, in 21 percent of the schools, reading is taught by English teachers and in 37 percent by reading and English teachers -- (p. 200).

Most of the research dealing with secondary reading programs was conducted in the early 1960s. The majority of these programs employed a skills approach as reading was, at that time, thought to be composed of separate skills and abilities, such as getting the main idea, recalling details, understanding word meanings. It was felt that these skills could be identified, measured, and taught. Since 1967 debate has raged which challenges the very foundation of these programs. Psycholinguistic models (e.g. Goodman, 1967; Ruddell, 1969) suggest that reading is an active, ongoing integrative process, rather than a skills-based activity. Cooper and Petrosky (1976) have stated that such models should be informing our decisions about high school reading programs; materials, instruction and tests. They

recommended giving students ". . . an intensive developmental reading experience in a separate course . . ." in high school. They proposed a reading course in which no skill exercises, workbooks, or reading machines would be used. Instead, the main activities would be sustained silent reading, speed reading practices, exercises in syntactic redundancy, and study skills through an examination of their content area textbooks. Unfortunately, no research base exists for such a program.

In conclusion, therefore, we are left with many questions about secondary school reading programs; three such questions must be raised here. Why, after a flurry of research in the early 1960s, has research of secondary programs slowed down? How much effect have psycholinguistic models had upon secondary reading programs? Are psycholinguistic type reading programs (as proposed by Cooper and Petrosky) as effective or more effective than programs employing a skills model? At a time when increased interest and emphasis is being placed on reading instruction on the secondary level, is it not well past time to reinstitute vigorous research relative to such programs? It is not enough to subject students to theory; for instruction to be pursued energetically with certainty about its validity, it must be based on valid, updated, carefully-designed research.

Bibliography

- Artley, A. Sterl. Trends and Practices in Secondary School Reading. (Newark, Delaware: International Reading Association), 131, 1968.
- Berkey, Sally. "A Successful High School Developmental Reading Program," Journal of Reading, 10, 442-447 (April, 1967).
- Cooper, Charles R. and Petrusky, Anthony R. "A Psycholinguistic View of the Fluent Reading Process," Journal of Reading, 20, 184-207 (December, 1976).
- Davis, Frederick B. "The Assessment of Change," Phases of College and Other Adult Reading Programs (Emery P. Bliesmer and Albert J. Kingston, Eds.) Tenth Yearbook of the National Reading Conference Inc., 86-95 (1961).
- Freed, Barbara R. "Secondary Reading -- State of the Art," Journal of Reading, 17, 195-201 (December, 1973).
- Goodman, Kenneth S. "Reading: A Psycholinguistic Guessing Game," Journal of the Reading Specialist (May, 1967).
- Gray, William S. and Rodgers, Bernice. Maturity in Reading; Its Nature and Appraisal. (Chicago: University of Chicago Press)p. 273, 1956.
- Hegman, Marian. "Developmental Reading Laboratories," Journal of Developmental Reading, 6, 65-68 (Autumn, 1962).
- Herber, H. L. "An Experiment in Teaching Through Social Studies Content." In J. A. Fugurel (Ed.), Changing Concepts of Reading Instruction -- Proceedings of the International Reading Association, 6, 122-124, 1961.
- Hill, Walter. "Characteristics of Secondary Reading: 1940-1970." Educational Document No. 049887, 1-16, (December, 1970).
- McDonald, A. S. "Research for the Classroom: Assessing the Effects of Reading Programs," Journal of Reading, 8, 417-421 (1965).
- Marquis, Bettylee. "Developmental Reading -- New Albany High School." Journal of Developmental Reading, 7, 58-62 (1963).
- Ohlsen, Merle M. "Interpretation of Test Scores," The Impact and Improvement of School Testing Programs (Warren D. Findley, ed.), The Sixty-second Yearbook of the National Society for the Study of Education, Part II (Chicago: University of Chicago Press, 1963).

Rossman, Jean F. "How One High School Set Up a Reading Program for 500 Students," Journal of Reading, 393-397 (February, 1977).

Ruddell, Robert B. "Psycholinguistics Implications for a Systems of Communication Model," Psycholinguistics and the Teaching of Reading, Kenneth S. Goodman and James T. Fleming, eds. (Newark, Delaware: International Reading Association), 61-78, 1967.

Spache, George D. "Reading Rate Improvement — Fad, Phantasy, or Fact?" Improvement of Reading Through Classroom Practice (J. A. Figurel, ed.) International Reading Association Conference Proceedings (Newark, Delaware: International Reading Association), 28-30, 1964.

Williams, Jack W. "High School Summer Reading Classes," California Journal of Secondary Education, 33, 141-142 (March, 1958).

Problems of External Validity in
Secondary Reading Research

Keith E. Meredith

The intent of this series of papers was to determine what research, if any, provides empirical support for instructional practices currently being recommended by authorities in the field. Other papers, in addition to those reported here, have been completed or are in progress. A common finding has been that, for an overwhelming number of instructional practices, research support is minimal or lacking altogether. This finding obviously points to the need for more research on instructional practices. Also a cautionary note needs to be issued against wide-scale adoption of practices with no support in the literature. A second common finding has been that the existing research often has been conducted with populations or in situations other than those for which the instructional practice is being recommended. The most prevalent example was research conducted with elementary school children which was then referenced as support for practices being recommended for use in secondary schools. Overgeneralization of research results provides the focus for this paper as such overgeneralization would be considered a problem of external validity.

Donald T. Campbell and Julian C. Stanley (1963), in their now classic chapter, discussed threats to internal and external validity. Glenn H. Bracht and Gene V. Glass (1968) later provided an excellent expansion and elaboration on the concept of external validity. External validity was defined in the following manner.

To the extent and manner in which the results of an experiment can be generalized to different subjects, settings, experimentors, and possibly, tests, the experiment possesses external validity. (p. 438)

Bracht and Glass then proceed to define and describe threats to external validity under two broad classifications: population validity and ecological validity. These classifications provide an excellent structure for examination of the problems involved in overgeneralization of research results, especially the generalization of research results from one age level to another.

Two threats exist within the classification of population validity. The first threat is generalization beyond the sampled population. The other threat is potential interaction of personological variables with the experimental treatment.

Kemphorne (1961) specified two populations: the accessible population and the target population. Typically a researcher has a limited population available for sampling. Statistical inference can only be made to populations from which the research sample was randomly drawn. Generalization to some target population beyond this sampled population is dependent upon the demonstration of similarities between the accessible (sampled) population and the target population such that the two populations can be viewed as essentially the same population. It is difficult to conceive of a convincing case being built demonstrating that elementary and secondary school populations are essentially the same population. In fact, our educational system is geared to the belief that these groups are uniquely different. However, I should be quick to point out that when one reviews the original research, such a case is seldom attempted. For example, I have yet

to find a research study which was conducted with first grade children in which the researcher, in the conclusions, then generalizes the results to tenth, eleventh, and twelfth grade populations. The risks involved in such a generalization are many and are great in consequence. These risks can be categorized under the heading of interaction between population characteristics and the treatment variable.

Campbell and Stanley (1963) refer to such interactions as selection by treatment interactions. Bracht and Glass (1968) discuss these interactions as interaction of personological variables and treatment. The question which must be addressed in determining whether such interactions exist is as follows: Given that the sampled population and the target population differ on some given variable, e.g., age, will different results be obtained from unique combinations of levels of this variable and the treatment variable? To the degree that different results would be obtained then, an interaction exists and generalization from one level of the variable to another level is limited dependent on the nature of the interaction. (See Bracht and Glass (1968, pp. 444-452) for discussion and examples of such interactions).

In his APA presidential address, Cronbach (1957) demonstrated how such interactions, when not taken into account in the research design, could result in conflicting results from one research to another. He urged researchers to develop research designs which would allow discovery of such aptitude by treatment interactions and to discontinue designs which mask them. In a later address, Cronbach (1975) questioned whether he was too simplistic in his recommendations for investigations of aptitude by treatment interactions for they can mask even higher order interactions (e.g., age X ability X treatment) in the same manner as the treatment-only designs mask first order interactions.

In general, reading research which provides the basis for many practices being recommended at the secondary level has not addressed itself to the possible existence of such interactions. Therefore generalization of research results to target populations with characteristics obviously different from the sampled populations must be viewed with extreme caution.

The second classification type of external validity, ecological validity, also presents some potential risks when generalizing from one age level to another. Again these risks can best be discussed under the term interaction. Bracht and Glass list and define ten threats to ecological validity. It is sufficient for the purposes of this paper to demonstrate how interactions between population characteristics and these threats to ecological validity present problems for generalization. I refer the reader to the Bracht and Glass article for a full listing and discussion of all of the threats to ecological validity.

One of the threats to ecological validity lies in the measurement of the dependent variable. A researcher must select a measuring instrument which is both a reliable and valid measure of the dependent variable. It is obvious that without such a device the results of any research are without meaning. Now let us examine this threat in light of the common practice of generalizing from one age group to another.

Before we can generalize across age groups the dependent variable itself must be the same across the different levels of the age variable. Is "reading" the same construct for second graders as it is for tenth graders? Comprehension? Context utilization? To the degree that these questions cannot be answered in the

affirmative one can easily see the futility of attempting to generalize research findings from one age group to another.

If the construct can be defined in a similar fashion then one must examine the operationalization of this construct, i.e., the measurement instrument. Would the characteristics of the measurement instrument be the same for different levels of the age variable? For example, one could not recommend that a fifty-blank cloze passage be used as a measurement device for first grade students. In similar fashion, a reading test for twelfth graders would probably not use the same format as a reading test for fifth graders. We cannot be trapped into the common mistake of assuming that if the instruments sound alike then they are measuring the same construct. "Reading tests" at the second grade are not measuring the same construct as "reading tests" at the twelfth grade.

To the degree that there is an interaction among the treatment variable, the construct and/or the measurement instrument, and a dissimilar characteristic of the sampled population and the target population, generalization to the target population is questionable. Such interactions are very common in methodological research.

Similar interactions can and do exist between each of the threats to ecological validity and characteristics of the sampled and target populations. Let it suffice to say that a reader must be aware of these threats and potential interactions in order to thoroughly and competently evaluate the ecological validity of a research study and instructional practices based on that study.

Throughout this paper generalization across age levels was used as

an example. However, the risks discussed exist whenever the sampled population and the target population differ on some characteristic. Age was used as an example as it was a common generalization made when research evidence was presented as support for an instructional practice at the secondary level.

Summary

The review of research which support instructional practices being recommended for the secondary level revealed that for many practices little or no research was existant. One might equate such practices to the pig who built his house of straw. Other practices were based on research which was conducted with populations or in situations different from those for which the instructional practices are being recommended. It was determined through discussion of threats to population and ecological validity that these practices may be equated to the pig who built his house of sticks.

One can only question whether the fate of the pig who built his house of sticks was any better than the fate of the pig who built his house of straw.

References

- Bracht, Glenn H. and Glass, Gene V. "The External Validity of Experiments," The American Educational Research Journal, 4: 437-474, (November, 1968).
- Campbell, Donald T. and Stanley, Julian C. "Experimental and Quasi-Experimental Designs for Research on Teaching." In N. L. Gage (ed.) Handbook of Research on Teaching. Chicago: Rand McNally & Co., pp. 171-246, 1963. (Also published as a separate, Experimental and Quasi-Experimental Designs for Research, by Rand McNally & Co., 1966).
- Cronbach, Lee J. "The Two Disciplines of Scientific Psychology," The American Psychologist, 12: 671-684 (November, 1957).
- Cronbach, Lee J. "Beyond the Two Disciplines of Scientific Psychology," The American Psychologist, 30: 116-127 (February, 1975).
- Kemphorne, Oscar. "The Design and Analysis of Experiments with Some Reference to Educational Research." In Raymond O. Collier, Jr., and Stanley M. Elam (eds), Research Design and Analysis: Second Annual Phi Delta Kappa Symposium on Educational Research. Bloomington, Indiana: Phi Delta Kappa. 97-126 (1961).

Research in Secondary Reading:
The Specialists' Responsibility

Patricia L. Anders

Let all secondary reading specialists be warned! Little research exists to support many of the methods you either use or tout. Furthermore, little is known regarding the variables related to effecting the development and implementation of secondary reading programs.

Surprising? Yes, it is. However, the research reviewed by Gaus, Hayes, and Sampson certainly suggest that such is the case. The purpose of this article is to offer a solution, albeit an unusual solution to most observers and perhaps even a radical solution to others. Nonetheless, the solution is one that is defensible, particularly in light of the lack of research available in the area of secondary reading.

The solution? Secondary reading teachers, specialists, and supervisors, particularly those with Master's Degrees in reading but not exclusively so, should be involved in active research in their schools and on their jobs. In other words, those folks on the firing line -- those working with adolescents -- who most need to know more about secondary reading should instigate and participate in the research that affects their methods and programs.

The screams of protest to this suggestion hardly need to be noted: "E-e-e gads I don't have time to do what I already know I should do, let alone do research, too!" "I can't do statistics!" "I barely got a B in my research and

design course, how am I supposed to do it?" and so on. Admittedly, it will not be easy, but let's consider it further. Five basic questions and answers should help to demonstrate the possibilities this idea has:

1. WHY should the secondary reading person be involved in research?
2. HOW can it possibly be carried out?
3. WHO can help carry it out?
4. WHAT should be studied?
5. WHEN can it fit into an already busy schedule?

Why . . .

On the surface of things the "Why should the reading person be involved in research?" is a simple question to answer. It is clear that the reading person in the secondary school is the one who has access to the students and is certainly the one who should have the questions.

However, there is another even more important reason. Each person involved in the field of reading should be seeking an understanding of the reading process. Many graduate students in reading enter programs with the expectation that when they finish their degrees they will know all there is to know about reading and have all of their questions answered. Much to their chagrin, however, this is seldom the result of their studies. Graduate students have been known to complain that instead of getting questions answered during their graduate programs they only develop more questions. Indeed, this is frustrating, but it is a necessary frustration. It may be a cliché to reiterate that reading is a complex process, but that cliché acquires meaning when one understands that little is actually known about the reading

process. The reading person who can struggle with that ambiguity will seek to complete an understanding of the process for themselves. Research can be a key for not only dealing with the ambiguity, but also for finding answers to questions that need to be addressed about reading generally and about secondary reading specifically.

Another reason for doing research that may not be clear to everyone is a political one. Many people believe that education is a field filled with incompetent people who have other than admirable reasons for choosing education as a profession. School personnel involved in research could help change this attitude. The reading person who can substantiate methods and programs on the basis of research would be contributing to an improved image of the field of education.

How and Who . . .

The answer to how to carry out research in the secondary school is dependent upon many factors.

First, the reading specialist needs to be inquisitive. A researcher is always asking why does something seem to work, or why doesn't it work, how should this or that be done and so forth. Educators, at all levels, are plagued with beliefs and assumptions that are superficial and without substantiation. If education is to be regarded as a respected profession, educators must go beyond the superficial and ask hard questions that can best be answered through research. The asking of these questions must be second nature to the reading specialist.

The preceeding first factor leads naturally to the second factor: graduate programs in reading need to provide students with basic research skills. Those skills need not be highly sophisticated; rather, they should be basic enough to

provide the specialist with enough confidence to ask questions and to seek solutions. The specialist who has the background to see alternatives for answering those nagging questions will be able to find the means for answering them.

Next, the secondary specialist should be able to see opportunities within the responsibilities he/she already has to carry research. The well-trained eye will see opportunities for research at nearly every turn whether it be in a classroom, a laboratory, or an entire school. Once again, a graduate program can do much to facilitate this particular ability. Graduate instructors should encourage their students to see research possibilities and should encourage the carrying out of that research.

This leads to the final factor of how research can be carried out and suggests who can help to do the research: an ongoing relationship needs to be established with a mentor who is skilled in sophisticated research techniques. Typically, such a person would be a university professor who has, as part of his or her normal responsibilities, the task of doing research. That person has the expertise, time, and resources to do much of the actual research. It would be feasible, for example, for the university professor and the reading specialist to work out the research design and the instrumentation, for the specialist to collect the data, for the two of them to tally the data, the professor to analyze it, and for the two of them to draw conclusions and implications from the data analysis. Articles, then, for sharing the results could be written jointly with all concerned gaining from the experience, including the reading community at large.

What and When . . .

The "What should be researched?" question is very difficult to answer simply because of its magnitude. So little has been done that the questions are endless. Here, however, are a few for consideration.

1. Research needs to be done concerning the nature of the reading materials required of secondary students. This of course includes investigation of readability but should also include investigations of concept load, of text organization, and of the various expository patterns of writing that purportedly express certain relationships between ideas in text.

2. Certain methods suggested by secondary reading authorities need researching. For example, does having students do exercises in differentiating main ideas from supporting details transfer to helping students comprehend content area material?

3. Secondary reading programs need to be examined as a whole. Which sorts of programs work for which sorts of schools? What successes and failures do certain kinds of programs seem to experience?

4. What sorts of methods seem to engender a positive student attitude toward reading?

These few suggestions should be a good starting point for the reading specialist who is committed to incorporating the conducting of research and the teaching of reading. It should also be apparent that these questions can be answered in the normal process of carrying out the reading specialists day to day responsibilities.

Conclusion

It is important and necessary for the secondary reading person to be involved in research. The conducting and reporting of research facilitates a person's own understanding of the reading process, it keeps that person alive in the quest for knowledge, and it is politically advantageous.

Furthermore, given the right mind-set it can be carried out by (1) asking the right questions and (2) combining efforts with a reading researcher.

The areas of secondary reading needing research are many. One only has to open a college text espousing methods of teaching secondary reading and the research possibilities leap from the pages.

A study reported in the Reading Teacher suggests that research monies should be granted to local school districts because too often university researchers are too far removed from the school setting to make their research applicable to the realities of education. While this point is well taken, it must be recognized that few local districts possess the expertise to carry out research. Thus, what is needed is a joint effort between local school districts and the universities.

This joint effort could bring about one final advantage for all. Roger Farr editorialized in several issues of the Reading Research Quarterly that new methods of research are needed in order to answer some of the most compelling questions confronting all areas of education, but particularly reading education. It is certainly possible that new research methods can and will be developed as university people work more closely with school people.

It may be sufficient to say at this point that I rest my case. It cannot be rested, however, unless and until the jury accepts the challenge and substantive research is initiated, carried out, and reported. So much for the presentation of the case -- let us all strive to carry it forth.

References

Farr, R. Editorial: practitioners should play a role in developing new methodologies. Reading Research Quarterly, XI, 2 (1975-1976).
See also Vol. X, No. 4.

Moseley, C. and Mosely, D. Language and reading among underachievers: a practical review of research. In The Reading Teacher, 31 (6), 619 (March, 1978)